REMARKS

Claims 1-27 are pending in the application.

Claim 27 is new.

Claims 1-26 are rejected.

Claims 1-7, 25 and 26 are rejected under 35 U.S.C. 102(e).

Claims 8, 15-22, and 24 are rejected under 35 U.S.C. 103(a).

Claims 9-14 are rejected under 35 U.S.C. 103(a).

No new matter is added.

Claims 1-27 remain in the case for consideration.

Applicant requests reconsideration and allowance of the claims in light of the following remarks.

New Claim

Claim 27 is new. Claim 27 is supported by the description of the invention in the application as filed. See Application, page 6, lines 1-5.

Claim Rejections – 35 U.S.C. § 102

Claims 1-7, 25, and 26 are rejected under 35 U.S.C. 102(e) as being anticipated by Iwakiri et al. (U.S. Patent No. 6,377,866; hereinafter "Iwakiri"). Claims 2-7 depend directly or indirectly from claim 1. Claim 26 depends directly from claim 25. Because Iwakiri does not teach all of the elements as set forth in claim 1, and therefore in claims 2-7, and Iwakiri does not teach all of the elements as set forth in claim 25, and therefore in claim 26, the Applicants respectfully disagree with the rejection.

Iwakiri does not teach "recognizing the actual character markings as characters" as recited in claims 1 and 25

In reference to Iwakiri, the Examiner stated that "The characters are displayed on the screen and therefore they must be recognized by the reading device."[1] "In relying upon the theory of inherency, the examiner must provide a basis in fact and/or technical reasoning to reasonably support the determination that the allegedly inherent characteristic <u>necessarily</u>

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[1] Office Action, p. 7

flows from the teachings of the applied prior art." (emphasis in original).[2] "Recognizing the actual character markings as characters" as recited in claims 1 and 25 does not necessarily flow from the teachings of Iwakiri.

As shown in the specification of Iwakiri, "The identification mark read from the reading camera 31 is *projected* on the screen 3a of the reading device body 3 while the read information is sent to the information processing device 1." (emphasis added)[3] In addition, "The identification mark is read out by the reading camera 31 and an image thereof is *displayed* on the reading device body 3." (emphasis added)[4] The image on the reading device is merely a *displayed* or *projected* copy of the image taken by the camera. The markings comprising the image are not recognized as characters before they are shown on the screen.

Iwakiri does disclose a process of "comparing the read information and the engraving information."[5] However, this process does not necessarily imply a process of "recognizing actual character markings as characters" as recited in claim 1 and 25. The specification and the claims in Iwakiri only disclose "comparing" information. Little is mentioned beyond "comparing," and in fact, there is an absence of the requirement that actual character markings are recognized as characters.

It is not necessary to the disclosure in Iwakiri that the actual character markings be recognized as characters, only that the image containing the read information is compared to the engraving information. The presence of the characters on the screen of the reading device does *not* imply a "recognizing" process as recited in claims 1 and 25. Because the recognizing process is absent in Iwakiri, the Applicants request that the Examiner withdraw the rejection under 35 U.S.C. 102 for claims 1-7, 25, and 26 and allow the claims.

Claim Rejections – 35 U.S.C. § 103

Claims 8, 15-22, and 24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Iwakiri in view of Schemmel et al. (U.S. Patent No. 5,943,551; hereinafter "Schemmel"). Claims 16 and 17 depend from claim 15. Claims 19-22, and 24 depend from claim 18. Because Iwakiri in view of Schemmel does not teach all of the limitations of claim 15, and therefore claims 16 and 17, and does not teach all of the limitations of claim 18, and therefore claims 19-22, and 24, the Applicants respectfully disagree with the rejection.

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[2] MPEP §2112, quoting *Ex parte Levy*, 17 USPQ2d 1461, 1464 (Bd. Pat. App. & Inter. 1990)
[3] Iwakiri, col. 3, ll. 10-13
[4] *Id.* at col. 3, ll. 24-26
[5] *Id.* at col. 3, l. 46

Claims 9-14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Iwakiri in combination with Schemmel and in further view of Akamatsu (U.S. Patent No. 5,768,290; hereinafter "Akamatsu"). Claims 10-14 depend from claim 9. Because Iwakiri in view of Schemmel, and in further view of Akamatsu does not teach all of the limitations of claim 9, and therefore claims 10-14, the Applicants respectfully disagree with the rejection.

Iwakiri in view of Schemmel does not teach a method or apparatus for detecting defective markings using an Optical Character Recognition technique as recited in claims 8, 10, and 15-24

The Optical Character Recognition (OCR) device as disclosed in Schemmel is not used for detecting defective markings, but for acquiring information. Schemmel does disclose an OCR device as part of an image acquisition system.[6] However, as described in the detailed description, the OCR device is part of a wafer ID reader that identifies each unique silicon wafer.[7] The OCR device is distinct from the optical image acquisition system. "[T]he wafer ID reader 24 identifies the silicon wafer 16 as it is directed to the chuck 18, that positions the silicon wafer 16 under the lens optics 20 of the optical image acquisition system 30."[8] It is the optical image acquisition system and the lens optics that scan the surface of the wafer, detecting the defects.[9] In addition, the OCR device (wafer ID reader 24) and the optical image acquisition system 30 are shown as distinct in Figs. 1A and 1B. The OCR device, consequently, is not used in the detection of defects.

Claims 8, 10, 15, and 18 describe an apparatus or a method for detecting defective markings using an OCR unit or an OCR technique. This OCR feature would not be taught by combining Schemmel with Iwakiri. In Schemmel, OCR devices do *not* perform the inspection of the wafer for defects. In fact, a CCD camera is used to perform the inspection.[10] In neither Iwakiri, nor Schemmel, is there a suggestion to combine the wafer ID OCR device of Schemmel with the reading camera from Iwakiri, instead of the CCD camera of Schemmel. There is no suggestion to use an OCR device as part of the inspection. Consequently, the combination of Iwakiri and Schemmel do not disclose an apparatus or a method for detecting defective markings using an OCR unit or an OCR technique.

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[6] Schemmel, col. 2, ll. 20-25
[7] *Id.* at col. 3, ll. 49-58
[8] *Id.* at col. 4, ll. 32-36
[9] *Id.* at col. 4, ll. 39-44
[10] *Id.* at col. 5, ll. 47-56

Even if Iwakiri in view of Schemmel teach the use of an OCR technique, the references do not teach the use of the OCR data in determining whether a marking is defective as recited in claims 8, 10, and 15-24

Claims 8, 10, 15, and 18 all involve using the data generated by the OCR technique or device in a comparison with a reference character set. Schemmel, the reference disclosing OCR, only discloses OCR in the use of identification of a wafer ID. It has another device, the optical image acquisition system, which generates the data used to judge the quality of the wafer. There is no suggestion to use the data generated by the OCR device instead of the CCD camera for the purpose of detecting defective markings. As a result, the combination Schemmel with Iwakiri would not result in the use of OCR data in determining if a marking is defective.

Iwakiri in view of Schemmel does not teach transferring the product to a carrier tape as recited in claim 15

Claim 15 includes the limitation of "transferring the product onto a carrier tape" in a method for use on assembled and visually tested semiconductors. Iwakiri or Schemmel or both in combination do not teach this limitation. Not only is there no mention of a carrier tape, but Iwakiri and Schemmel are much earlier in the semiconductor manufacturing process, long before a carrier tape is needed.

The inspection in Iwakiri occurs right after the time when wafers are sliced off of the silicon ingot. This occurs early in the manufacturing process. The inspection in Schemmel occurs after wafer manufacturing, but before any on wafer testing. In contrast, the use of a carrier tape for assembled and tested devices occurs very late in the process. In addition, because of the earlier times in the manufacturing process of Iwakiri and Schemmel, it would be premature to put the products from Iwakiri or Schemmel in a carrier tape.

Iwakiri in view of Schemmel and in further view of Akamatsu does not teach a method of detecting defective markings including recognizing the character image as characters and comparing character data to a reference character set as recited in claims 9-14

Claim 9 includes "recognizing the character image as characters to produce character data, and comparing the character data to said reference character set to detect defective product markings." As stated above, Iwakiri alone does not disclose recognizing a character image as characters. In addition, as stated above, Iwakiri and Schemmel in combination do

not teach the use of an OCR technique for use in detecting defective markings. Since the OCR device in Schemmel is the only mention of a device capable of recognizing a character image as characters, Iwakiri and Schemmel in combination therefore do not teach the process of recognizing the character image as characters. Further, as stated above, even if Iwakiri in view of Schemmel discloses OCR or recognizing the character image as characters, the references still do not disclose the use of the character data in a comparison.

Akamatsu has no mention of recognizing a character image as characters. In addition, there is no mention of any OCR technique. Therefore, Iwakiri in view of Schemmel and in further view of Akamatsu does not teach a method of detecting defective markings including recognizing the character image as characters and comparing character data to a reference character set

In conclusion, concerning to the 103 rejections based on Iwakiri in view of Schemmel, the references do not teach a method or apparatus for detecting defective markings using an Optical Character Recognition technique as in claims 8, 15, and 18. Claims 16-17 depend from claim 15, and claims 19-22, and 24 depend from claim 18. Because of the merits of the claims and their dependencies, the Applicants respectfully request that the Examiner withdraw the rejection under 35 U.S.C. 103 for claims 8, 15-22, and 24.

Finally, concerning to the 103 rejections based on Iwakiri, in view of Schemmel, further in view of Akamatsu, the references do not teach a method of detecting defective markings including recognizing the character image as characters and comparing character data to a reference character set as in claim 9. Claims 10-14 depend from claim 9. Because of the merits of the claims and their dependencies, the Applicants respectfully request that the Examiner withdraw the rejection under 35 U.S.C. 103 for claims 9-14.
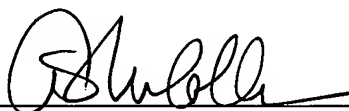
Conclusion

For the foregoing reasons, reconsideration and allowance of claims 1-26 of the application is solicited. The Examiner is encouraged to telephone the undersigned at (503) 222-3613 if it appears that an interview would be helpful in advancing the case.
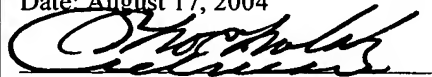
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Respectfully submitted,

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